

REMARKS

Reconsideration of the present application is requested. Claims 1-34 are pending, with claims 24-31 being withdrawn from consideration. Claim 1 remains generic to all of species I – IV. Upon allowance of claim 1, Applicants request rejoinder of claims 24-31.

ALLOWABLE SUBJECT MATTER

Applicants appreciate the Examiner's indication of the allowable subject matter defined by claims 5, 7 and 22. Applicants appreciate the allowance of claims 32-34.

PRIORITY DOCUMENTS

The Office Action indicates that certified copies of the priority documents have been received from the International Bureau. However, as Applicants previously explained, Applicants filed a Priority Letter along with a certified copy of priority document 10-2003-0037137 on January 14, 2005. Accordingly, Applicants request the Examiner re-check the file and indicate the correct manner in which the Priority Document was received in the next PTO correspondence.

PRIOR ART REJECTIONS

Rejection Under 35 U.S.C. § 103(a)

The Examiner rejects claims 1-4, 6, 8-21 and 23 under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,943,099 ("Kim") in view of U.S. Patent Application Publication No. 2007/0229917 ("Itani"). Applicants traverse this rejection, especially in view of claims 1 and 8 as amended.

Claim 1 is directed to an interlaced-to-progressive conversion method including, "selectively performing one of at least two interlaced-to-progressive conversion (IPC) techniques on input interlaced scan data based on a received control command, one of the at least two IPC techniques generating at least one scan line of including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value." Such a method is not taught nor suggested by *Kim* or *Itani*, taken singly or in combination.

In the conversion device of *Kim*, a correlator 130 detects a motion correlation DM, a vertical direction correlation DV and a temporal-vertical correlation DT from the input interlaced image signal. The correlations DM, DV and DT are output to a selector 140. The selector 140 compares the motion correlation DM, the vertical correlation DV and the temporal-vertical correlation DT with predetermined constants TM, T1 and T2, respectively.

The selector 140 selects one of a spatially interpolated signal IS output from the spatial interpolator 110 or a temporally interpolated signal IT output by the temporal interpolator 120 based on the compared results. The selected signal is output by the selector 140 as an interpolated signal Vout.

Contrary to the method of claim 1, in the conversion device of *Kim*, the selector 140 selects one of a spatially interpolated signal IS or a temporally interpolated signal IT based on a comparison between motion correlation DM, vertical correlation DV and temporal-vertical correlation DT with predetermined constants. No combining of these signals or spatial and temporal pixel values

is performed, and thus, *Kim* does not teach or suggest one of at least two IPC techniques "generating at least one scan line of including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value," as required by claim 1. Therefore, *Kim* fails to teach or fairly suggest at least, "*selectively performing one of at least two interlaced-to-progressive conversion (IPC) techniques on input interlaced scan data based on a received control command, one of the at least two IPC techniques generating at least one scan line of including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value,*" as required by claim 1.

Itani discloses an image reproduction apparatus in which a progressive scanning conversion circuit 17 generates progressive scanned image signal based on whether a main image signal is film material or video material. In the embodiment of FIG. 1, if the main image signal is film material, the progressive scanning conversion circuit 17 performs progressive scan conversion in response to a repeat periodic signal generated by the repeat periodic signal generation circuit 18.

If the main image signal is video material, the progressive scanning conversion circuit 17 generates a progressive scanned image signal using a current field image information and previous field image information. Data from the previous field is used to interpolate in the vertical direction with respect to pixels having small movements between the current and previous

fields. For pixels having larger movements between previous and current fields, vertically interpolated data is generated from upper and lower pixel data in the same field to obtain an output shown in FIG. 7.

Itani mentions interpolation with respect to progressive scan conversion of a main image signal that is video material, but is silent with regard to the use of any interpolation to generate a progressive scanned image signal when the image signal is film material. At most, however, the interpolation used in connection with the video material is spatial interpolation generating only spatially interpolated pixel values, but not spatio-temporal interpolation "generating at least one scan line of including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value," as required by claim 1. Therefore, *Itani* also fails to teach or suggest at least, "selectively performing one of at least two interlaced-to-progressive conversion (IPC) techniques on input interlaced scan data based on a received control command, one of the at least two IPC techniques generating at least one scan line of including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value," as required by claim 1.

Because neither reference teaches or suggests at least, "receiving a control command to perform one of at least two interlaced-to-progressive conversion (IPC) techniques on input interlaced scan data, one of the at least two IPC techniques generating at least one scan line of including spatio-

temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value," the combination of *Kim* and *Itani* (assuming *arguendo* such a combination could be made, which Applicants do not admit) does not render the method of claim 1 obvious. Accordingly, claim 1 is patentable over *Kim* and/or *Itani*.¹

Claim 8 requires, "a conversion structure configured to generate different streams of scan data from input interlaced scan data, the different streams of scan data representing conversion of the input interlaced scan data into portions of progressive scan data according to different IPC conversion techniques, one of the different streams including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value," and thus, claim 8 is patentable over *Kim* and/or *Itani* for at least reasons somewhat similar to those set forth above with regard to claim 1.

Claims 2-4 and 6 are patentable over *Kim* and *Itani* at least by virtue of their dependency from claim 1. Claims 9-21 and 23 are patentable over *Kim* and *Itani* at least by virtue of their dependency from claim 8.

¹ To be thorough and further expedite prosecution, Applicants discuss each of the references in turn with respect to claim 1. For the sake of clarity, Applicants provide discussions of each of the references separately, however, Applicants are not attacking these references individually, but arguing that the references, even taken in combination, fail to render the claimed invention obvious because all features of claim 1 are not found in the prior art.

Rejection under 35 U.S.C. § 102

The Examiner rejects claims 1 and 8 under 35 U.S.C. § 102(e) as allegedly anticipated by *Itani*. Applicants traverse this rejection, especially in view of claims 1 and 8 as amended.

As discussed above, the interpolation performed by *Itani* is, at most, spatial interpolation generating only spatially interpolated pixel values, but not spatio-temporal interpolation, "generating at least one scan line of including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value," as required by claim 1.

Therefore, *Itani* fails to teach or fairly suggest at least, "receiving a control command to perform one of at least two interlaced-to-progressive conversion (IPC) techniques on input interlaced scan data, one of the at least two IPC techniques generating at least one scan line of including spatio-temporal pixel values, each spatio-temporal pixel value being a combination of a spatially interpolated pixel value and a temporally interpolated pixel value," as required by claim 1.

For at least this reason, *Itani* does not anticipate or render obvious the method of claim 1. Accordingly, claim 1 is patentable over *Itani*.

Claim 8 is patentable over *Itani* for at least reasons somewhat similar to those set forth above with regard to claim 1.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of the pending claims is earnestly solicited.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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